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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/347,622	07/02/1999	STEVEN W. MEEKS	4304	4111

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EXAMINER
NGUYEN, TU T

ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 01/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/347,622	MEEKS ET AL.	
	Examiner	Art Unit	
	Tu T Nguyen	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 2-32 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 2-32 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 July 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5,7 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Serial Number: 09/347,622
Filing Date: 07/02/99

Paper No: 11

Detailed Office Action

The amendment filed on 12/26/01 has been received and considered. By this amendment, claim 1 has been canceled and claims 2-32 are now pending in this application.

Election/Restriction

Applicant's election without traverse of group II, claims 2-32 in Paper No. 10 is acknowledged.

Information Disclosure Statement

1) The information disclosure statement filed 01/08/2001 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because the US patent listed in the form 1449 is not identified by inventor and issue date. It has been placed in the application file, but the information referred to therein has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609 ¶ C(1).

2) The listing of references in the specification is not a proper information disclosure

statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

The list of references in the specification page 3, lines 2-3; page 3, line 9, 21-22; page 4, line 27; page 40, lines 20-23; page 63, lines 5-9; page 64, lines 5-9; page 66, lines 15-18; page 69, lines 25-26; page 70, lines 1-3, etc are not considered.

Specification

1) Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited.

For this application, the abstract is more than 150 words.

2) The disclosure is objected to because of the following informalities:

a) in the specification page 1, line 11, after "19 August 1998" the update patentable status "Now US patent no. 6,031,615" should be inserted.

b) in the specification page 52, line 16, the un-breviate format of the "RMS" should be used before the abbreviated "RMS" can be used. What is the "RMS"?

c) in the specification page 58, lines 11-12, line 25; and page 59, line 2, the "high temperature thin film measurement system 2000" is not found in fig 20.

d) in the specification page 62, line 23, the "diffeser 222" is not found in fig 20.

3) The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 4, lines 3-4, the claimed limitation "determining a difference between said first and second intensities to reduce the effects of a texture" is ambiguous. The difference between the first and the second intensities can just inform the user the texture of an object, but the test

intensity data cannot reduce the effects of a texture of an object. For further examining purpose, the claimed limitation is read as "determining a difference between said first and second intensities to determine the texture of said first object".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 2-4,8-9,15-17,26 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Groot (5,644,562).

With respect to claim 2, Groot discloses a method for measuring a rotating disk. The method comprises: transmitting a first light signal 3 (fig 5) toward a first object 20 (fig 5); separating the first reflected polarized signal component 118 (fig 5) (column 11, lines 2-3) and the second reflected polarized signal component 119 (fig 5) (column 11, lines 3-4) from the reflected signal 9 (fig 5) from the first object; detecting a first intensity of the first reflected polarized signal component 18 (fig 5) (column 11, lines 7-9); detecting a second intensity 19 (fig 5) (column 11, lines 7-9) of the second reflected polarized signal component; Groot does not explicitly teach determining a phase difference between the first and second reflected polarized light signal components based upon the first and second intensities. However, Groot teaches that the intensity detectors 18 and 19 (fig 5) of the two intensity components can be

used in a phase detection means (column 11, lines 1-6) and further teaches a formula for calculating a phase difference as a function of intensities of the reflected polarized light signal components (column 7, lines 15-19; column 6, lines 19-23). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to determine the phase difference between the reflected polarized light signal components using the intensities of the signal components and the formula (10), (11), (12), (26) of Groot. The motivation for this would have been to eliminate a phase measuring device, this would help reduce complexity of the system structure and system maintenance.

With respect to claim 3, Groot does not discloses that the first object is a magnetic disk or a wafer. However, Official Notice is taken that detecting the phase difference between the two reflected light components on a magnetic disk or a wafer to determine a characteristics of the disk would have been well known in the art. See In Re Malcolm 1942 C.D.589: 543 O.G.440. Further, Groot teaches that the method for measuring intensities could be used to measure complex index (column 10, lines 44-47). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to use Groot's method on a magnetic disk or a wafer which is well known to have complex index the motivation for this would have been to accurately test the characteristic of the interested disk by observing the index and phase difference of the reflected polarized light components.

With respect to claim 4, Groot does not explicitly teach determining a difference between the first and second intensities to determine the effects of texture on the object.

However, Groot teaches in column 11, lines 32-34 that a plurality of characteristics of the disk can be calculated based on the intensity polarization analysis. Since the texture of the disk would have been well known reflect the characteristic of the disk and effect birefringence properties, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to determine the effects of a texture on the object using the measured intensity polarization signal of Groot. The motivation for this would have been to specifically categorize different characteristics of the disk using the same set of calculated light intensities and phase difference, this would help providing specific characteristics of the disk with simple system setup and construction.

With respect to claim 7, Groot does not explicitly teach determining magnetic characteristic of the object based on difference in phase, however, Groot teaches determining a plurality of characteristics of disk based on the intensity analysis (column 11, lines 31-34). Since it would have been well known that the magnetic characteristic of the disk relates to the birefringence, it would have been obvious to determine the specific magnetic characteristic of the disk using the intensities and phase difference of Groot. The motivation for this would have been to report specific characteristics and specification of the disk to the manufacture using the measured result of light intensity and phase different; this would help providing user several specific characteristic of the disk using a simple measuring system.

With respect to claim 8, Groot discloses polarizing the incident beams 3 (fig 5) to first and second orthogonal polarized components (column 8, lines 8-11).

With respect to claim 9, Groot does not explicitly disclose the first and the second reflected polarized light signal components are orthogonally polarized. However, Official Notice is taken orthogonally polarizing reflected light signal would have been well known in the art. See In Re Malcolm 1942 C.D.589: 543 O.G.440. It would have been obvious to one having ordinary skill in the art at the time of the invention was made polarize the first and second reflected polarized light signal components of Groot orthogonally in order to facilitate evaluating the polarized signals.

With respect to claims 15-17, refer to discussion in claims 2-4 above. The claimed system is an extended of the claimed method as claimed in claims 2-4.

With respect to claim 26, refer to discussion in claim 8. The claimed system is an extended of the claimed method as claimed in claim 8.

Claims 5-7,18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Groot (5,644,562) in view of Haruna et al (6,172,752).

With respect to claims 5-6, Groot does not discloses determining a thickness of a thin film. However, Haruna discloses that the thickness of a thin film or a layer can be determined based on the difference in phase of polarization reflecting light (column 1, lines 19-34). Further, Official Notice is taken that an optical disk constructed with a substrate and several layers, including a lubricant layer and a carbon layer would have been well known in the art.

See In Re Malcolm 1942 C.D.589: 543 O.G.440. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include the teaching in Haruna to the system of Groot to detect the thickness of the lubricant or the carbon layer of the disk in order to provide the manufacturer detail information on the specification and characteristics of the disk.

With respect to claims 18-20, refer to discussion in claims 5-7. The claimed system is an extended of the claimed method as claimed in claims 5-7.

Claims 10,21,27,30 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Groot (5,644,562) in view of Yamamoto et al (5,610,897).

With respect to claim 10, Groot does not disclose measuring the magneto-optic Kerr effect based upon the difference in phase. However, Yamamoto discloses the relationship between the phase difference of the S and P polarized components and the Kerr effect (column 50, lines 12-19). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to include consideration of Kerr effect in Groot's method as suggested by Yamamoto in order to improve the system's accuracy.

With respect to claim 21, refer to discussion in claim 10. The claimed system is an extended of the claimed method as claimed in claim 10.

With respect to claim 27, refer to discussion in claim 2 for determining the phase difference and to claim 10 for the Kerr effect.

With respect to claim 30, refer to discussion in claim 27. The claimed system is an extended of the claimed method as claimed in claim 27.

Claims 11-12,22-23,28-29,31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Groot (5,644,562) in view of Yamamoto et al (5,610,897) in view of Singhal et al (5,985,680).

With respect to claim 11, Groot and Yamamoto do not disclose determining a defect and marking the defect. However, Singhal discloses a method for determining the defect (column 1, line 16, lines 23-26) and marking the defect (column 1, lines 65-66). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to combine Singhal method for marking defect to Groot's method in order to report the user the exact location where the defect is found. This would help simplifying the procedure to locate the error location.

With respect to claim 12, Groot and Yamamoto do not disclose the claimed marking steps. However, Singhal disclose a method for marking the defect by moving and positioning a mechanical scribe to a defect position (column 3, lines 10-12); marking the location with the scribe (column 3, lines 9-10). It would have been obvious to one having ordinary skill in the

art at the time of the invention was made to combine Singhal method for marking defect to Groot's method in order to report the user the exact location where the defect is found. This would help simplifying the procedure to locate the error location.

With respect to claims 22-23, refer to discussion in claims 11-12. The claimed system is an extended of the claimed method as claimed in claims 11-12.

With respect to claim 28, refer to discussion in claim 11 for determining and marking the defect.

With respect to claim 29, refer to discussion in claim 12 for positioning the defect.

With respect to claims 31-32, refer discussion in claims 22-23 above.

Claims 13-14,24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Groot (5,644,562) in view of Singhal et al (5,985,680).

With respect to claim 13, Groot does not disclose determining a defect and marking the defect. Singhal discloses a method for determining the defect (column 1, line 16, lines 23-26) and marking the defect (column 1, lines 65-66). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to combine Groot's method with Singhal's method of detecting and marking the defect to avoid repeating scanning the wafer for

defects to reduce the system test.

With respect to claim 14, refer to discussion in claim 12 above.

With respect to claims 24-25, refer to discussion in claims 13-14 above. The claimed system is an extended of the claimed method as claimed in claims 13-14.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu T Nguyen whose telephone number is (703) 306-9185. The examiner can normally be reached on M-T 7:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G Font can be reached on (703) 308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Tu Tuan Nguyen
Patent Examiner TC 2877
January 26, 2002/TTN